MEMORANDUM

DEPARTMENT OF TRANSPORTATION

DATE May 15, 1975

SUBJECT I-508, RIGHT-OF-WAY SETTLEMENT
SIDNEY-UNADILLA
DELAWARE COUNTY, PIN 9357.05-211
MAP 2125, PARCELS 2136, 2139

FROM A. Yatsevitch, Senior Engineering Geologist

TO E. M. Moody, Associate Soils Engineer

Attached is the final report on Well No. 3 on the Norman Marks property initiated in February 1975. Mr. Richard Hill of the Region 9 Real Estate Office has been advised by telephone that the results of the water analyses for this well show no detrimental qualities in the water and that there are no further actions required on our part pertaining to acceptance of the well by Mr. Marks. Of course, we remain available for consultation in any relevent matters.

AY:BR
Attachment

NO. 3

WATER WELL-NORMAN MARKS PROPERTY

On February 4, 1975, at the request of Mr. Richard Hill (Real Estate Division-Region 9), this writer contacted Mr. Norman Marks and arranged for a meeting at the Marks residence in Unadilla to discuss the construction of a new well as directed by the January 27, 1975 memorandum from Mr. A. J. Casimo (Negotiations Bureau). This meeting tock place on February 10, 1975 between Mr. Marks, Mr. Hill, Mr. Paul Rosenstein (Mr. Marks's designated driller) and this writer. The discussion produced an agreement between Mr. Marks, Mr. Rosenstein and Mr. Hill pertaining to the method of payment for the work to be done, and between this writer, Mr. Marks and Mr. Rosenstein pertaining to the starting date and location for the new well.

On February 13, 1975 Mr. Rosenstein set up his drilling rig and proceeded to drill a 6" hole at the approximate location agreed upon. Drilling progressed until March 3, 1975 when the well was terminated by mutual agreement in rock at the depth of 190 feet. Either the writer and/or Mr. Robert Bazarnick, (Jr. Engr. Geologist) was present during the entire drilling procedure. In summary, approximately 36 feet of overburden was penetrated and a gray shaley sandstone was encountered at approximately 38 feet. The casing was driven approximately 1.5 feet into rock before refusal. The bedrock consisted of alternating sequences of red shales and gray shaley sandstone (varying proportions). A small show of water was present between 98 feet and 100 feet in fine grained gray sandstone. At 115 feet in red shale an estimated total yield of over 15 G.P.M. was present. Several zones appeared to be contributing water at this point, with the static water level at approximately 32 feet.

Heavy rain, snow, and intermittent thawing conditions undeniably contributed to the sudden large quantities and high level of water in the well. Drilling continued until March 3, 1975 when at 190 feet it was decided that adequate storage capacity was reached in the well without encountering the soft red shale layer which yielded the unacceptable water in the other well on the property. A well log made up by the writer from bailed samples is attached. A bail test indicated a potential yield of 35 G.P.M. with an approximate drop of 20 feet in static water level. It was decided that a forty-eight hour continuous pump test would be adequate to establish the capacity of this well.

On March 4, 1974 an SD-8-75 2W AERMOTOR pump delivering approximately 13 G.P.M. was installed at a depth of 170 feet for the pumping test. After two hours of pumping the water cleared of all visible particulates and remained so throughout the test. The well was thoroughly disinfected during the pumping test. Water samples were taken at the conclusion of the forty-eight hour test for bacteriological and chemical analysis by the D.O.H. in Albany, not only from the new well but from the other two wells on the Marks property, to check for any possible deleterious effects of the new well on the others. It should be mentioned at this time that members of the Marks household noted that during drilling and pump-tests of the new well clouding of the water and other detrimental effects were noted in the water being pumped from the other wells. The magnitude of these effects were not evaluated except for noting their existence and apparent duration. The results of the D.O.H. water analyses are attached. No significant detrimental quality deviations from drinking water standards are indicated for the water from the new well.

Mr. Rosenstein has installed a cap on the casing pending acceptance of the water supply by Mr. Marks.

NYSDOT
Library
50 Wolf Road, POD 34
Albany, New York 12232

# 48-HOUR PUMP TEST

PUMP: Model SD-8-75 2W AERMOTOR (220V)

LOCATION: 170' ±

TIME STARTED: 1:45 P.M. March 4, 1975

*NOTE: All Depth Measurements From Top of Casing 32" Above Ground Level

| TIME | WATER LEVEL | PUMPING RATE | COMMENTS |
|---|---|---|---|
| 1:45 P.M. | 26'-1" | 13 GPM | Red/Murky |
| 2:45 | 28'-11" | 13 | Cloudy |
| 3:45 | 29'-11" | 13 | Cloudy |
| 4:45 | 31'-6" | 13 | Clear |
| 5:45 | 31'-6" | 13 | " |
| 10:30 | - | 13 | " |
| 9:00 A.M. | 32'-1" | 13 | " |
| 10:00 | 32'-1-1/2" | 13 | " |
| 11:00 | 32'-2" | 13 | " |
| 12:00 P.M. | 32'-2-3/4" | 13 | " |
| 1:00 | 32'-2-1/2" | 13 | " |
| 2:00 | 32'-2-1/2" | 13 | " |
| 6:00 | 32'-3-1/2" | 13 | " |
| 8:00 A.M. | 32'-5-1/2" | 13 | " |
| 9:00 | 32'-6" | 13 | " |
| 10:00 | 32'-7" | 13 | " |
| 10:30 | Pumps in other two wells turned on to clear for sampling | | |
| 11:00 | 34'-8" | 13 | " |
| 12:00 P.M. | 34'-6" | 13 | " |
| 1:00 | 34'-6" | 13 | " |
| 2:00 (END) | 34'-8" | 13 | " |

------SAMPLES TAKEN FROM ALL THREE WELLS------

WELL LOG - WELL NO. 3 MARKS PROPERTY

| | |
|---|---|
| 6'-0" | Yellowish fine gravelly silt loam |
| 10'-0" | Yellowish fine gravelly silt loam |
| 15'-0" | Yellowish medium gravelly silt loam<br>Coarser and more red in gravel than above |
| 20'-0" | Beige fine gravelly/coarse sandy silt loam |
| 25'-0" | Reddish beige fine gravelly silt loam |
| 30'-0" | Reddish coarse sandy silt loam. Multi-colored sand particles (80% green/grey, 10% red, 10% yellowish). |
| 35'-0" | Rock. Grayish-green granitic composition. Some detrital reds and mafics. Probably boulder. |
| 40'-0" | Multi-colored (60% green, 25% grey, 15% red) gravel detritus (mostly granitics and sandstones). |
| 45'-0" | 50/25/25 Fine sandy red shale/fine sandy green/grey shale/green/grey fine sandstone |
| 50'-0" | Shaley fine grained red sandstone |
| 55'-0" | Fine grained red shale (at least 30% non-red components). |
| 60'-0" | Fine grained red shale |
| 65'-0" | Slightly shaley fine grained red sandstone. Some grey. |
| 70'-0" | 50/50 Red/grey fine grained sandstone |
| 75'-0" | Fine sandy red shale; some fine red/grey sandstone |
| 80'-0" | 50/50 Fine sandy red shale/fine sandy grey-green shale |
| 85'-0" | Fine sandy grey shale |
| 90'-0" | Fine sandy grey shale |
| 95'-0" | 70/30 Fine grained grey sandstone/fine sandy grey shale |
| 100'-0" | 80/20 Fine grained lt. grey sandstone/fine sandy grey shale |
| 105'-0" | Fine grained lt. grey sandstone |
| 110'-0" | 95/5 Fine grained lt. grey sandstone/fine sandy grey shale. Trace pyrite. |
| 115'-0" | 95/4/1 Fine sandy red shale/fine sandy grey shale/fine grained grey sandstone. |
| 120'-0" | 50/45/5 Fine grained red sandstone/fine grained red shale/ fine grained grey shale |

| | |
|---|---|
| 125'-0" | 95/5 Fine grained red sandstone/fine sandy grey shale |
| 130'-0" | 45/30/20/5 Fine sandy grey shale/fine grained red sandstone/fine grey sandstone/fine sandy red shale |
| 135'-0" | 85/15 Fine grained grey sandstone/fine sandy grey shale |
| 140'-0" | 60/30/10 Fine sandy red shale/fine grained red sandstone/ fine sandy grey shale |
| 145'-0" | 50/90/10 Fine grained red sandstone/fine sandy red shale/ fine sandy grey shale |
| 150'-0" | 60/30/10 Fine grained red sandstone/fine sandy red shale/ fine sandy grey shale |
| 155'-0" | 60/35/5 Fine grained red sandstone/fine sandy grey shale/ fine sandy red shale |
| 160'-0" | 80/10/10 Fine sandy red shale/fine grained red sandstone/ fine sandy grey shale |
| 165'-0" | 45/40/15 Fine sandy red shale/fine grained red sandstone/ fine sandy grey shale |
| 170'-0" | 80/15/5 Fine sandy red shale/fine grained red sandstone/ fine sandy grey shale |
| 175'-0" | 75/20/5 Fine grained red sandstone/fine sandy red shale/ fine sandy grey shale. Trace pyrite. |
| 180'-0" | 75/20/5 Fine grained red sandstone/fine sandy red shale/ fine sandy grey shale |
| 185'-0" | 65/30/5 Fine grained red sandstone/fine sandy red shale/ fine sandy grey shale. |
| 190'-0" | 50/35/15 Fine grained red sandstone/fine sandy red shale/ fine sandy grey shale |

END

END

NOTE TO BE APPENDED TO WELL LOG:

The well log was compiled by the writer from wash samples brought up in the bailer and sampled after rinsing out the fines. These field samples were brought to the laboratory, washed thoroughly and dried prior to examination under the microscope. This procedure undoubtedly introduced some distortion of actual material characteristics into the sample descriptions due to the loss of the soluble fraction and corresponding exaggeration of those fractions less susceptable to the action of drilling and washing. Also, the sampling procedure by use of a bailer introduces a certain amount of contamination of the sample from specific horizons by fragments originating in upper parts of the borehole. Consequently, the lesser fractions in the descriptions may very well be "contamination" from other levels and not represent the content of the in-place material at the sampled depth.

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER

RESULTS OF EXAMINATION
(PAGE 1 OF 2)

LAB ACCESSION NO: 01151 YR/MO/DAY/HR SAMPLE REC'D: 75/03/07/11

REPORTING LAB: 10 GRIFFIN LAB
PROGRAM: 820 NYS DEPT. OF TRANSP.
STATION (SOURCE) NO:
DRAINAGE BASIN: NY GAZETTEER NO: 1265 COUNTY: DELAWARE
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBW'SHED: NORMAN MARKS PRIVATE SUPPLY-WELL NO1

EXACT SAMPLING POINT: BASEMENT TAP
TYPE OF SAMPLE: 16 PRIVATE SUPPLY, MISCELL.
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 03/06/14
REPORT SENT TO: CO (1) RO (0) LPHE (1) LHO (0) FED (0) CHEM (0)

| | PARAMETER | UNIT | RESULT | NOTATION |
|---|---|---|---|---|
| 00010C | COLOR (APPARENT) | | 3. | |
| 00020C | TURBIDITY, J.T.U. | | 1.2 | |
| 00030C | COOR, HOT | | 1.0044 | |
| 00050I | NITROGEN,AMMONIA AS N | MG/L | 0.02 | |
| 00070I | NITROGEN,NITRITE AS N | MCG/L | 2. | |
| 00080I | NITROGEN,NITRATE AS N | MG/L | 2.0 | |
| 00100I | CHLORIDES | MG/L | 8. | |
| 00110I | HARDNESS, TOTAL AS CACO3 | MG/L | 45. | |
| 00150I | ALKALINITY, MTH OR AS CACO3 | MG/L | 14. | |
| 00190C | PH (LABORATORY) | | 6.3 | |
| 00640I | NITROGEN,KJELDAHL,INCL. AMM | MG/L | 0.21 | |
| 00650I | CHEMICAL OXYGEN DEMAND | MG/L | 4. | LT |
| 01000I | IRON | MG/L | 5.2 | |

DATE COMPLETED: 5/09/75

DEPUTY CHIEF ENGINEER,TECHNICAL SERVICES
NYS DEPT.OF TRANSPORTATION, BLDG. 7A
1220 WASHINGTON AVENUE
ALBANY, N.Y. 12226

SUBMITTED BY: W HOFMANN

NEW YORK STATE DEPARTMENT OF HEALTH
DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER

RESULTS OF EXAMINATION
(PAGE 2 OF 2)

LAB ACCESSION NO: 01151 YR/MO/DAY/HR SAMPLE REC'D: 75/03/07/11

REPORTING LAB: 10 GRIFFIN LAB
PROGRAM: 820 NYS DEPT. OF TRANSP.
STATION (SOURCE) NO:
DRAINAGE BASIN: NY GAZETTEER NO: 1265 COUNTY: DELAWARE
COORDINATES: ' DEG ' "N, DEG ' "W
COMMON NAME INCL SUBW'SHED: NURMAN MARKS PRIVATE SUPPLY-WELL NO1

EXACT SAMPLING POINT: BASEMENT TAP
TYPE OF SAMPLE: 16 PRIVATE SUPPLY, MISCELL.
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 03/06/14
REPORT SENT TO: CO (1) RO (0) LPHE (1) LHO (0) FED (0) CHEM (0)

| | PARAMETER | UNIT | RESULT | NOTATION |
|---|---|---|---|---|
| 01C201 | MANGANESE | MG/L | 0.06 | |
| 01C701 | SODIUM | MG/L | 50. | |
| 10C30C | COOR, COLO | | 1.0044 | |
| 10/101 | PHOSPHATES, TOTAL AS P | MG/L | 0.020 | |
| 01C401 | POTASSIUM | MG/L | 10. | |
| 00C401 | SULFATES AS SO4 | MG/L | 19. | |
| 00C001 | TOTAL DISSOLVED SOLIDS | MG/L | 77. | |

DATE COMPLETED: 5/09/75

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RESULTS OF EXAMINATION
(PAGE 1 OF 2)

LAB ACCESSION NO: 01150 YR/MO/DAY/HR SAMPLE REC'D: 75/03/07/11

REPORTING LAB: 10 GRIFFIN LAB
PROGRAM: 820 NYS DEPT. OF TRANSP.
STATION (SOURCE) NO:
DRAINAGE BASIN: NY GAZETTEER NO: 1265 COUNTY: DELAWARE
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBW'SHED: NORMANMARKS PRIVATE SUPPLY WELL NO2, UNADILLA

EXACT SAMPLING POINT: BASEMENT TAP
TYPE OF SAMPLE: 16 PRIVATE SUPPLY, MISCELL.
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 03/06/14
REPORT SENT TO: CO (1) RO (0) LPHE (1) LHO (0) FED (0) CHEM (0)

| | PARAMETER | UNIT | RESULT | NOTATION |
|---|---|---|---|---|
| 00C20C | TURBIDITY, J.T.U. | | 420. | |
| 00C30C | COLOR, HOT | | 3.0014 | |
| 00C501 | NITROGEN,AMMONIA AS N | MG/L | 0.14 | |
| 00C709 | NITROGEN,NITRITE AS N | MCG/L | 66. | |
| 00C801 | NITROGEN,NITRATE AS N | MG/L | 0.1 | LT |
| 01C01 | CHLORIDES | MG/L | 59. | |
| 01101 | HARDNESS, TOTAL AS CACO3 | MG/L | 23. | |
| 01501 | ALKALINITY, MTH OR AS CACO3 | MG/L | 103. | |
| 01901C | PH (LABORATORY) | | 7.5 | |
| 06401 | NITROGEN,KJELDAHL,INCL. AMM | MG/L | 0.8 | |
| 06501 | CHEMICAL OXYGEN DEMAND | MG/L | 10. | |
| 01C01 | IRON | MG/L | 0.05 | LT |

DATE COMPLETED: 5/09/75

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ALBANY, N.Y. 12226

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RESULTS OF EXAMINATION
(PAGE 2 OF 2)

LAB ACCESSION NO: 01150 YR/MO/DAY/HR SAMPLE REC'D: 75/03/07/11

REPORTING LAB: 10 GRIFFIN LAB
PROGRAM: 820 NYS DEPT. OF TRANSP.
STATION (SOURCE) NO:
DRAINAGE BASIN: NY GAZETTEER NO: 1265 COUNTY: DELAWARE
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBWATERSHED: NORMANMARKS PRIVATE SUPPLY WELL NO2, UNADILLA

EXACT SAMPLING POINT: BASEMENT TAP
TYPE OF SAMPLE: 16 PRIVATE SUPPLY, MISCELL.
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 03/06/14
REPORT SENT TO: CO (1) RO (0) LPHE (1) LHO (0) FED (0) CHEM (0)

| | PARAMETER | UNIT | RESULT | NOTATION |
|---|---|---|---|---|
| 01C201 | MANGANESE | MG/L | 0.02 | |
| 01C701 | SODIUM | MG/L | 4.0 | |
| 100300 | ODOR, COLD | | 3.0014 | |
| 107101 | PHOSPHATES, TOTAL AS P | MG/L | 0.091 | |
| 01C401 | POTASSIUM | MG/L | 0.7 | |
| 002401 | SULFATES AS SO4 | MG/L | 26. | |
| 002001 | TOTAL DISSOLVED SOLIDS | MG/L | 238. | |
| 100100 | COLOR (TRUE) | | 0. | |

DATE COMPLETED: 5/09/75

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DIVISION OF LABORATORIES AND RESEARCH
ENVIRONMENTAL HEALTH CENTER

RESULTS OF EXAMINATION
(PAGE 1 OF 2)

LAB ACCESSION NO: 01149 YR/MO/DAY/HR SAMPLE REC'D: 75/03/07/11

REPORTING LAB: 10 GRIFFIN LAB
PROGRAM: 820 NYS DEPT. OF TRANSP.
STATION (SOURCE) NO:
DRAINAGE BASIN: NY GAZETTEER NO: 1265 COUNTY: DELAWARE
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBW'SHED: NORMANMARKS PRIVATE SUPPLY WELL NO3

EXACT SAMPLING POINT: WELL CASING
TYPE OF SAMPLE: 16 PRIVATE SUPPLY, MISCELL,
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 03/06/14
REPORT SENT TO: CO (1) RO (0) LPHE (1) LHO (0) FED (0) CHEM (0)

| | PARAMETER | UNIT | RESULT | NOTATION |
|---|---|---|---|---|
| 000100 | COLOR (APPARENT) | | 5. | |
| 000200 | TURBIDITY, J.T.U. | | 1.2 | |
| 000300 | ODOR, HOT | | 1.0044 | |
| 000501 | NITROGEN,AMMONIA AS N | MG/L | 0.02 | LT |
| 000709 | NITROGEN,NITRITE AS N | MCG/L | 2. | |
| 000801 | NITROGEN,NITRATE AS N | MG/L | 2.0 | |
| 001001 | CHLORIDES | MG/L | 8. | |
| 001101 | HARDNESS, TOTAL AS CACO3 | MG/L | 44. | |
| 001501 | ALKALINITY, MTH OR AS CACO3 | MG/L | 15. | |
| 001900 | PH (LABORATORY) | | 6.3 | |
| 006401 | NITROGEN,KJELDAHL,INCL. AMM | MG/L | 0.27 | |
| 006501 | CHEMICAL OXYGEN DEMAND | MG/L | 4. | LT |
| 010001 | IRON | MG/L | 0.05 | LT |

DATE COMPLETED: 5/09/75

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RESULTS OF EXAMINATION
(PAGE 2 OF 2)

LAB ACCESSION NO: 01149 YR/MO/DAY/HR SAMPLE REC'D: 75/03/07/11

REPORTING LAB: 10 GRIFFIN LAB
PROGRAM: 820 NYS DEPT. OF TRANSP.
STATION (SOURCE) NO:
DRAINAGE BASIN: NY GAZETTEER NO: 1265 COUNTY: DELAWARE
COORDINATES: DEG ' "N, DEG ' "W
COMMON NAME INCL SUBW'SHED: NORMANMARKS PRIVATE SUPPLY WELL NO3

EXACT SAMPLING POINT: WELL CASING
TYPE OF SAMPLE: 16 PRIVATE SUPPLY, MISCELL.
MO/DAY/HR OF SAMPLING: FROM 00/00 TO 03/06/14
REPORT SENT TO: CO (1) RO (0) LPHE (1) LHO (0) FED (0) CHEM (0)

| PARAMETER | | UNIT | RESULT | NOTATION |
|---|---|---|---|---|
| 010201 | MANGANESE | MG/L | 0.03 | |
| 010701 | SODIUM | MG/L | 4.0 | |
| 100300 | COOR, COLD | | 1.0044 | |
| 107101 | PHOSPHATES,TOTAL AS P | MG/L | 0.016 | |
| 010401 | POTASSIUM | MG/L | 0.7 | |
| 002401 | SULFATES AS SO4 | MG/L | 21. | |
| 002001 | TOTAL DISSOLVED SOLIDS | MG/L | 75. | |

DATE COMPLETED: 5/09/75

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SUBMITTED BY: HOFMANN

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